during the hour, it is apparent that the total flow which actually passed through the rotameter during that hour was 250 gallons. Similarly, an actual count of 80 would indicate a total flow of 125 gallons, while an actual count of 288 would indicate a total flow of 450 gallons.

The integrating mechanism of the present invention has several distinct advantages over totalizers heretofore employed. Thus, for example, the counting is done without imposing any appreciable load whatever upon the metering float. Furthermore, since the totalizer "feels out" the instantaneous rate of flow several times a minute (for example, the totalizer can be set to make four sweeps per minute), the mechanism adjusts its rate of counting with sufficient frequency to ensure high accuracy.

Another advantage of the integrator of the present invention is that it permits the use of 2 or more electrical counters at any convenient location by simply connecting them in parallel with the mercury circuit.

Furthermore, electrical ticket- or tape-printing counters of conventional construction can be used in place of, or in addition to the counter described hereinabove.

As shown particularly in Figures 1 and 3, the remote rate-of-flow recorder and the integrator can be combined in a single unit for convenient reading.

While, for purposes of illustration, the integrator mechanism of the present invention has been described in connection with measurement of fluid flow wherein it constitutes a preferred embodiment, it is apparent that the integrator mechanism could be used equally well in connection with measurement of other variable conditions, such as temperature, pressure, etc. That is, it is apparent that the calibration cam could be rotated by the action of elements sensitive to variations in other conditions. For example, the calibration cam could be rotated by a temperature- or pressure-sensitive element such as a Bourdon tube.

The integrator of the present invention could also be used, for example to integrate, into total miles covered, the readings of a speedometer indicating miles per hour. Again, it could be used to integrate, into total pounds carried, the readings of a continuous weigher measuring pounds per minute carried by a belt conveyor or the like.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and it is therefore desired that the present embodiment be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

Having thus described the invention, what I claim as new and desire to protect by Letters Patent is:

1. In a system for remote indication of fluid rate-of-flow having a rotameter including a vertical metering tube and a float adapted for free up-and-down movement responsive to variations in rate-of-flow of fluid through said tube and having indicating means remote from said rotameter; an extension tube disposed in axial alignment with said metering tube, an elongated member extending from said metering float into said extension tube, a balanced beam connected to said indicating means, and means for tilting said beam responsive to movements of said float, said last-mentioned means comprising an alternating current impedance circuit including a pair of end-to-end co-axial transmitter coils disposed about said extension tube, an armature carried by said elongated member and adapted to be moved with said transmitter coils by said float, a pair of generally vertical laterally-disposed parallel cylindrical receiver coils, and a pair of armatures carried by said beam and extending within said receiver coils and adapted to be pulled thereby so as to exert opposite moments upon said beam, the relative impedance of said transmitter coils being varied upon movement of the float-carried armature thereby to vary the current flowing in the respective receiver coils so as to vary the pull on the respective beam armatures and thus to tilt said beam.

2. In a system for remote indication of fluid rate-of-flow having a rotameter including a vertical metering tube and a float adapted for free up-and-down movement responsive to variations in rate-of-flow of fluid through said tube and having indicating means remote from said rotameter; an extension tube disposed in axial alignment with said metering tube, an elongated member extending from said metering float into said extension tube, a balanced beam connected to said indicating means, and means for tilting said beam responsive to movements of said float, said last-mentioned means comprising an alternating current impedance circuit including a pair of end-to-end co-axial transmitter coils disposed about said extension tube, an armature carried by said elongated member and adapted to be moved within said transmitter coils by said float, a pair of generally vertical laterally-disposed parallel cylindrical receiver coils, and a pair of armatures carried by said beam and extending within said receiver coils and adapted to be pulled thereby so as to exert opposite moments upon said beam, the relative impedance of said transmitter coils being varied upon movement of the float-carried armature thereby to vary the current flowing in the respective receiver coils so as to vary the pull on the respective beam armatures and thus to tilt said beam, said receiver coils being provided with cores of hard glass tubing having an extremely smooth and accurate cylindrical inner bore whereby the beam-armatures will move within said receiver coils with very little friction.

3. In a system for remote indication of fluid rate-of-flow having a rotameter including a vertical metering tube and a float adapted for free up-and-down movement responsive to variations in rate-of-flow of fluid through said tube and having indicating means remote from said rotameter; an extension tube disposed in axial alignment with said metering tube, an elongated member extending from said metering float into said extension tube, a balanced beam connected to said indicating means, and means for tilting said beam responsive to movement of said float, said last-mentioned means comprising an alternating current impedance circuit including a pair of end-to-end co-axial transmitter coils disposed about said extension tube, an armature carried by said elongated member and adapted to be moved within said transmitter coils by said float, a pair of generally vertical laterally-disposed parallel cylindrical receiver coils, and a pair of armatures carried by said beam and extending within said receiver coils and adapted to be pulled thereby so as to exert opposite moments upon